

ABSTRACT OF THE DISCLOSURE

A comminution apparatus for reducing a particle size of a material includes a cutting chamber defining an interior volume, wherein the cutting chamber includes first and second member forming an angle therebetween. Each of the first and second members include a plurality of slots therethrough providing access to the interior volume. The apparatus further includes a rotatable arbor disposed outside the interior volume of the cutting chamber and supporting a plurality of toothed blades thereon. During rotation of the arbor a portion of each of the blades enters an interior volume of the cutting chamber through the slots in the first member and exits the interior volume of the cutting chamber through the slots in the second member. The comminution apparatus may be used to process various feed materials to desired sizes, and is particularly useful for reducing the size of materials otherwise difficult to cut to small size. Such materials include, for example, zirconium, titanium, magnesium, niobium, calcium, copper, potassium, hafnium and aluminum